THE OPTICAL

MAGIC LANTERN

JOURNAL

AND

PHOTOGRAPHIC ENLARGER.

EDITED BY J. HAY TAYLOR.

Vol. 7.—No. 80. [Entered at Stationers' Hall] JAN., 1896. Double No., Price 2d.

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Notices.

The *Optical Magic Lantern Journal and Photographic Enlarger* is issued on the 1st of every month, price One Penny, and may be obtained from all Newsvendors, Railway News Stalls, Photographic Dealers, or from the Publishers, at the following rates, post free:—

		United States.
12 months	2/-	60 cents.
Single copies	-/2	6 „

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Small Advertisements must reach the office not later than the first post on the 24th of each month. All cheques and postal orders to be made payable to Taylor Brothers.

Editorial communications must be addressed, J. Hay Taylor. Advertisements and business communications to **Taylor Brothers, 56, Chancery Lane, London, W.C.**

American Agents:—The International News Co., 83 and 85, Duane Street, New York City.

A Happy New Year to All.

Notes.

In our last issue we stated that Messrs. Bird & Son (Bird's Custard Powder) were prepared to lend the slides advertised in another column. We find that we were mistaken in this matter, and that instead of lending, this firm is prepared to present the set of coloured slides gratis on receipt of threepence to pay postage on same. We regret the error on our own part, and must say the offer is a most generous one on the part of Messrs. Bird & Son.

* * *

At the recent Stanley Show the bronze medal for the best novelty in lantern and photographic apparatus was awarded to Messrs. Butcher & Son.

* * *

The Moonlight Patent Lamp Company's vapour lamps for cyclists and photographers were on exhibition at the Crystal Palace Exhibition, and many persons appeared particularly interested in them. We find that as a ready and reliable means of illumination for a lecturer's reading lamp they are excellent.

* * *

With the New Year the Photographic Times Publishing Company of New York intend moving from their old premises at Broome Street to 60 and 62, East Eleventh Street.

* * *

The new antiseptic discovered in Germany goes under a somewhat formidable name. When one wishes for any they have to ask for

POTASSIUMORTHODINITROCRESOLATE.

* * *

The third annual exhibition of the New Cross Camera Club was held early last month at the Goldsmiths' Company Technical and Recreative Institute, and a good exhibition it was too.

Among other exhibits, Messrs. Noakes & Son had a fine exhibition of lanterns, which, as may be expected, was greatly admired.

* * *

"STUDIES from Prison Life" is a set of slides which bids fair to have a prolonged and interesting career. As stated in our last issue, it made its *début* at a dual lecture (the first of its kind ever given) at Highbury and Soho. On the 11th ult. a large audience at the Chelsea Baptist Chapel was, under the fostering care of Mr. W. H. Grove, of Brompton Road, S.W. initiated into the mysteries of a life which, doubtless, they never hope to experience.

* * *

SEEING that there is a growing interest in science in connection with soirées and evening parties, Mr. Carnall, of 40, Gladstone Buildings, Willow Street, E.C., announces that, in addition to the lantern, he is also prepared to supply the microscope and suitable slides. Mr. Carnall is a microscopist of many years standing, and when an audience have both him and his microscope at hand, they can rely on having a very interesting and instructive entertainment.

* * *

SOME of the questions received from correspondents would make the proverbial Cheshire cat laugh. Many of these find their way into the W.P.B., but as one facetious individual appeared to be very anxious to see his attempt at humour in type, we will oblige him in this instance. He writes:—"Will nitrous oxide (laughing gas) act as a substitute for oxygen in the limelight? Will it be a better light than oil, and be cheaper than oxygen? What would be the effect (if used) on the audience—supposing a view of a cemetery was projected, would the audience roar with laughter?"

* * *

WITH reference to our remarks in November Journal about a New York company having purchased the business of the Boston Camera Company, the makers of the Bull's-eye Cameras, The European Blair Camera Co. write us that the transaction does not in any way affect their business, as they will continue to supply the now popular Bull's-eye Cameras and Cartridges of improved model, and that the word "Bull's-eye" being their registered trade mark, no camera other than their own make can be sold in Great Britain under that name.

* * *

ABOUT a year ago Messrs. Cook, of travel fame, adopted the plan of lending, free of cost, to anyone joining their parties, and who wished to give a descriptive lecture of places visited, a set of slides illustrative of the places of interest visited. Up to the present they have lent between two and three thousand slides.

* * *

THE other day at Klausthal, in Germany, lightning struck the wooden post of a house and fused two nails four millimetres thick. Messrs. Siemens and Halske, of Berlin, afterwards carried on a series of experiments to ascertain the force required to melt this quantity of iron. Assuming one second as the time standard, it required a current of 200 amperes and 20,000 volts. representing 7,000 horse-power. If the lightning occupied one-tenth of a second to fuse the two nails, the horse-power required would be 70,000.

* * *

THE well-known wholesale firm of opticians Joseph Levi & Co. ("Leviathan, London"), who have occupied premises at 40, Furnival Street, E.C., for over thirty years, will, by the time this journal is published, be in their new premises at 97, Hatton Garden, E.C. The new premises are large, and are fitted up in a splendid style. There are two immense show floors, besides clerks' offices, private offices, and stock rooms. We have been invited to a minute inspection of the premises as soon as everything is in apple-pie order.

—:o:—

Testing Limelight Jets.

THE outcome of the challenge which was inserted in our pages some time ago by Mr. Pringle, and which was accepted in order to ascertain whether Mr. Pringle's jet gave a more powerful light than his competitors, culminated in a trial of strength at the Photographic Club recently. The intensity of the various lights was determined with care by umpires of repute; but like many other trials of strength, it ended in what may be termed a word-war among many of those present. One thought he did not have sufficient indulgence; another, that his name had been left out; another again, found fault with the construction of the meaning of certain questions he asked, saying he meant one thing, whilst others evidently thought he meant something else. Anyhow, seeing that various sized nipples were used, thus causing various proportions of gas to be used, varying from 5 to 20 feet per hour, it was no easy matter to determine which was in reality the best. If the trial was to determine which jet produced the greatest amount of light, irrespective of any conditions, then it was a simple matter; but in order to arrive correctly at the qualities of a jet, it has been suggested that that jet which gave a light satisfactory for general exhibition purposes with the mininum consumption of gas should be considered the best.

A horse may be strong, so may be a domestic flea, and if one were asked which were the stronger, would it be correct to say the horse? for in comparison to its size, the flea is proportionately many times as strong. The mixed jet which gave the greatest amount of light consumed about 17 feet of gas per hour—this, of course, with a large nipple—whilst the lowest amount used by any mixed jet was 11 feet; whereas a saturator with a small bore, used in conjunction with ether, used only about 4 feet of gas per hour. Yet with all the gas expended in the former case, and the large size of the nipple, the illuminating power of the very finest mixed jet was only four times as great as the saturator with the small bore, and using about a quarter the gas.

To publish the names of the makers of the jets would hardly be right, but the following table of results shows the results of the experiments, which were not without interest, especially to those assembled.

		Cubic feet of Gas consumed per hour.		Relation of illumination in terms of—					Results Arranged in the order of Illuminating Power.			
Order.	No. of Jet.	Coal Gas.	Oxygen.	The Less.	The Greater.	Number 3.	Number 8.	Number 5.	No. of Jet.	Ratio.	Oxygen.	Coal Gas.
A	1	6·50	7·23	1·00	·75	75	·74	·44				
	3	7·60	9·15	1·34	1·00	..	..	..	5	1·00	*	10·25
B	2	5·50	6·40	1·00	·99	·99	·98	·58				
	3	5·80	9·60	1·11	1·00	,,	..	..	12	·95	*	10·00
C	8	7·80	8·32	1·21	1·00							
	3	8·00	8·64	1·00	·99	,,	·99	·59	7	·72	*	9·77
D	8	9·58	9·60	1·51	1·00							
	4	7·60	9·34	1·00	·66	,,	·66	·40	8	·60	*	10·25
E	8	9·87	9·60	2·15	1·00							
	11	5·75	5·28	1·00	·46	..	·46	·28	3	·59	8·64	8·00
F	8	10·25	*	1·00	·60	,,	..	·60				
	5	9·66	*	1·65	1·00	..	..	..	2	8	6·40	5·50
G	7	9·77	*	1·00	·72	,,	,,	·72				
	5	9·50	*	1·38	1·00	..	..	..	6	·54	6·01	5·83
H	9	6·40	6·18	1·00	·38	,,	..	·38				
	5	10 00	*	2·66	1·00	..	..	..	1	·44	7·23	6·50
I	12	10·00	*	1·00	·95	,,	,,	·95				
	5	10·00	*	1·05	1 00	..	..	..	6	·40	5·50	6·00
J	6	5·83	6·01	1·00	·54	,,	..	·54				
	5	10·00	*	1·85	1·00	..	..	..	4	·40	9.34	7·60
K	5	10·25	*	2·50	1·00							
	6	6·00	5·50	1·00	·40	..	..	·40	9	·38	6·18	6·40
L	5	10·25	*	3·90	1·00	,,	..	1·00				
	10	Ether	4·16	1·00	·26	,,	..	·26	11	·28	5·28	5·75
..	..	..	..	..	..	..	..	..	10	·26	4·16	Ether

* Denotes that more than ten feet of gas were being used.

A Noiseless Electric Signal.

By C. Higgs.

One of the many trifles that go towards the success of a lantern entertainment is an efficient means of communication between platform and lantern. The usual signal—a red light shown at the back of the lecturer's reading lamp—has the drawback of being equally visible to the whole audience as to the operator, for whom alone it is intended. The use of a hand-bell on the reading desk has an even worse effect. To avoid this distracting influence, many have adopted a portable electric bell, placed close to the lantern, with a flexible wire leading from the platform. This is an improvement on the old plan, but still it is open to the objection that the signals are audible, and being as a rule sent during a pause in the reading, are distinctly heard by everyone within range.

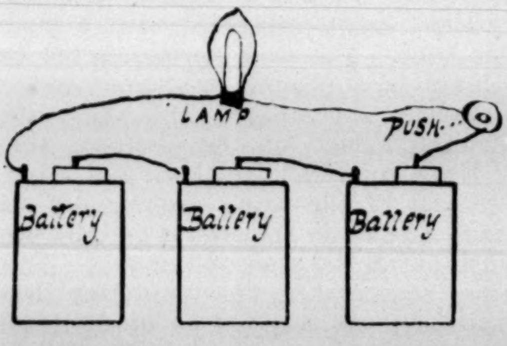
What is wanted is a signal which shall inform the lantern operator alone of what is to take place, and which shall not require so much of his attention as the red light on the reading lamp. These requirements are carried out in an arrangement I made some time ago, which could be put together by any reader of this Journal possessing a slight knowledge of electrical apparatus, with the same success as has attended my own working.

The apparatus consists of two or three "dry" batteries in one compartment of a wooden case, the other and smaller compartment having a glass cover or lid, and containing a small electric "fairy" lamp, connected with a push and flexible cord. The case containing the battery and lamp are placed in some convenient position near the lantern, and the push near the lecturer's hand on the platform, the wire being slung over gas brackets and other projections out of the way. Signals are sent in the same way as on an electric bell, by pressing the push button for a second or so.

Before enumerating the purchases that will have to be made, a point to be settled is the number of batteries required. This will depend on the "voltage" of the small incandescent lamp. A lamp taking only two volts can be worked with a couple of batteries, but the light is very small. A four volt lamp with three batteries is better, and a four or five volt lamp with four batteries better still. The reader must be guided by circumstances as to which of these combinations will be the most suitable in his case. Perhaps, however, the second is best, as if then the light be insufficient it can be increased by adding another battery. As to the size of the batteries, the efficiency varies a great deal, and while the small size of some makers are quite powerful enough, the medium size will be found the best all round, although causing the case to be more bulky. It should be remembered that the flexible wire will take up a little current, and the whole battery should be sufficiently powerful when all is connected up to bring the filament of the lamp to incandescence just short of sparkling.

Now as to the purchases. There will be the batteries, a small incandescent lamp, a "pear" shaped push, and about six yards of flexible twin wire. The case can be made of fretwood, if neatly dovetailed together, or stouter material if desired. The size of this case will, of course, depend upon the number of batteries used, and the measurements must be obtained by placing the cells together as compactly as possible, adding another two inches or so to the length for the lamp compartment. This lamp compartment should be lined with white card, so as to make the most of the light. The red glass cover is best fitted at the narrower side of the case instead of the top.

The electrical arrangement is practically the same as that of an electric bell set, the lamp taking the place of the bell. The batteries must be connected together in series, *i.e.*, the inner or carbon terminal of one cell to the outer or zinc terminal of the next, leaving a carbon terminal free at the one end and zinc at the other. The following diagram shows all the electrical connections :—



The following are a few concluding hints :— Before fitting the cells into the case, wrap them round with brown paper to prevent the metal parts touching where not required. If a knot is made in the flexible cord on the inside where it leaves the case, there is no fear of the joinings being pulled apart. The arrangement must not be used as a reading lamp, or kept alight for more than a few seconds at a time.

On the Development of Lantern Sildes.

By Duncan Moore.

Continued from page 218.

Once ascertained, there will be no difficulty in giving a suitable exposure to negatives of the same class, and with practice the examination of the negative will at once indicate the exposure required. It should be seen that the negative and transparency plate are both flat and no irregularities on the surface. A very small knot in the glass under the film will very likely fracture the negative when pressed in the frame. By carefully looking over the surfaces of both negative and positive plate, any unevenness will be detected. A defective negative may be printed for a long time in the ordinary way without coming to grief, but when pressed hard against another unyielding surface a fracture soon occurs. Small splinters of wood from the frame, or other hard trifles, getting between the two glasses, generally results in disaster. The glass being curved, or of unequal thickness, considerable pressure has to be applied to force the films into close contact; a trifle between them, that might not cause damage with less pressure, with the increased strain would almost certainly do so.

A small screen held in the hand, a piece of cardboard, or something of the kind, is useful to shade parts of the negative during exposure, whilst the light continues to act on some denser portions. Much better results may often be had by this partial shading from many negatives. The screen must be kept gently moving during the time, and at not more than a few inches in front of the negative. A very thin negative is best copied by using a much weaker light than usual for negatives of ordinary density.

One very important precaution in copying by contact is the masking of the edges of the glass, either by an opaque paper mask, covering about a quarter of an inch of the negative all round, or by painting the edges and a quarter of an inch of the surface with black varnish. More transparencies are spoilt by neglecting this precaution than by almost any other. The light striking on the edges of the plate will fog nearly a third of the surface, and the brighter and nearer the light the more pronounced the effect. With films, of course, there is little danger of fogging from this cause, or breakage by pressure.

If the camera is used to make the transparencies, the size of the negative is immaterial. A lens of very short focus, such as wide angle lenses are, should not be used; one of ordinary angles, such as the rapid rectilinear, is best for the purpose, and its focus about the same as the length of the negative being copied. No light should enter the camera, except that forming the image; a mask being used to cut all the rest off, even if it is only portion of a large negative to be reproduced. This considerably brightens the effect. The focussing should be effected by aid of a magnifier, unless the operator is possessed of very acute vision. Even then I think magnification of the image is an advantage.

For my own part, I prefer soda-pyro developers, well restrained, and after fixing, immerse in a weak hydrochloric acid bath, of a strength of about one in eighty; the use of too strong a bath is apt to loosen the film from the plate. The colour can be altered by using protosulphate of iron in the hyposulphate fixing bath, and by clearing with citric acid and alum.

Before binding up the slides they can be labelled by writing on them with chrome yellow moist water colour thinned down, so as to run from a pan.

——:o:——

The Haunts of Glasgow Lanternists.

By G. R. Bryce.

Nowadays, one hears so much of London lantern doings, that Scotland is comparatively "left out in the cold"—the majority of new inventions in the lantern line seeming to come from Londoners or Englishmen. Glasgow has now grown to be a very large city, and, of course, it has its lanternists as well as London, and has quite a large number of lantern dealers. It is to the principal warehouses of the latter that I propose to conduct the reader to gaze in thought on the numerous windows, and feast his eyes on the delicacies suited to the taste of the lanternist.

Let us suppose, then, that we are stationed in front of Mr. James Brown's window in St. Vincent Street. One of the many windows of this spacious warehouse is devoted entirely to lanterns and apparatus connected with them. We see immediately that Mr. Brown's large stock is displayed to full advantage. Besides numerous single lanterns of every kind—tin, Russian iron, mahogany—we notice some fine bi-unials and limelight apparatus of the highest class. A well-known form of saturator is a prominent feature, and there are several designs of jets, which look very tempting to the lover of a good light. On examining the slides which are displayed, we find excellent studies of dogs, which are interesting from both an artistic and photographic point of view. Mr. Brown devotes several other large windows to scientific goods which are quite out of the lantern line, and, therefore, do not claim our attention.

Our next visit is to Messrs. Gardner & Co.'s, also in St. Vincent Street. Although the window space at their disposal is rather limited, we see that the different articles are well arranged, and that there is no confusion as might be expected at first sight. A substantial-looking bi-unial forms a centre piece, and around it are many other forms of lanterns, both mahogany and Russian iron. We notice several limelight accessories, among them being the limes in glass tubes which were lately introduced. There is also a good selection of lantern slides on view, a set of photos of Scottish scenery taking the first place in our estimation. Our eyes, at the same time, catch a glimpse of some very clever comic mottoes—well-coloured, and not vulgar, as is the case with some slides of this class which are in the market.

Mr. J. Lizars, Buchanan Street, has an exceptionally tasteful window. This name is familiar both to lanternists and photographers, the "Corporation" lantern and "Challenge" camera being too well-known to require introduction. As well as the above lantern, Mr. Lizars shows his "Compactum," "Imperial," and bi-unial lanterns. Of course, there are numerous others, but they take subordinate places, and our eyes wander almost instinctively to the former. Then, we find jets in abundance, and mechanical trays to suit them, reading lamps and carriers, regulators and dissolvers, limes, and other appliances which compose an outfit for a first-class lanternist. There is a splendid set of moonlight effect slides displayed for the benefit of the public, and, to judge by the number of admirers often seen around this window, the artistic talent of Glasgow lanternists seems to be above the average. Mr. Lizars' slide painting is done on the fourth flat of his warehouse, and the manufacture of lanterns, etc., is carried out at his factory in Howard Street.

The next window which we pass on our imaginary walk is that of Mr. Lyle. This gentleman seems to make a speciality of Russian iron lanterns, for the majority of those displayed seems to be of that metal. We see also several adjuncts to the lantern. Besides the usual limelight apparatus, there are chemical tanks, carriers, and materials for the manufacture of lantern slides. Among the large number of slides on view are some effective statuary studies of children, and comic slides which tickle our visible faculties.

We now direct our steps to Messrs. Mason & Co.'s warehouse in Sauchiehall Street. There seems to be rather a scarcity of lanterns in this window, but the loss is amply compensated for by a number of beautifully coloured slides of flowers and fruit, which in themselves are well worth a visit. We almost feel tempted to purchase the set outright, but the emaciated condition of our purses forbids this action. We observe, further, in this window, a good supply of lantern literature; the notices of the MAGIC LANTERN JOURNAL occupying a prominent position, which they ought to do.

Rather a peculiar occurrence—one might almost call it a paradox—happens at this stage of our walk. It will be noticed that of the dealers whom we still intend visiting, there is only one More, and at the same time there remains three.

This remark will explain itself when we reach Mr. More's warehouse in Renfield Street. A large portion of the windows is taken up by instruments which do not concern lanternists. However, a Matthews' lantern holds a conspicuous place, and there is a good assortment of limelight appliances. Besides a set of the Forth Bridge, we see a nicely coloured set of the "Vicar of Wakefield," illustrative of Goldsmith's well-known tale. Mr. More has a large factory in West Nile Street.

The name of Trotter is not unknown to readers of this Journal. As will be seen from his advertisement in last issue, his speciality is the "Trotter" lantern. We naturally look for this instrument in his window, and find that it fulfils all our expectations, and is a first-class educational lantern. Then, of course, there is the ordinary class of lanterns and accessories, a large part of the latter being composed of the "Primus" novelties. The absence of slides in this window is very conspicuous, but no doubt there is a large assortment within.

Our last visit is to Mr. James White, in Cambridge Street. As this gentleman is instrument maker to Glasgow University, he has a large supply of scientific apparatus in his windows, as well as "magic" lanterns, suitable for all "sorts and conditions," from the University don to the youngest schoolboy. Several lantern slides of yachting scenes are displayed for our admiration, and besides these there is an effect set, which looks very *effect*ive.

Of course, there are several other opticians in the City of Glasgow, but as they do not make a speciality of the lantern, they do not come under our present observation. Messrs. Hassard (of Sauchiehall Street) and Smith (of Dundas Street), however, are well worth the attention of the lanternist.

——:o:——

The Limelight: Its History and Use.

By S. Dicker.

WHEN the youngest lanternist of to-day is grey-headed he will be asked perhaps by the rising generation—What is that limelight which the old books on the optical lantern so frequently mention?—as there appears to be little doubt that, sooner or later, for such purposes as optical projection, oil, gas and limelight will have to give way to the electric light, which will be the future illuminant.

After all, limelight is not so very old; its years scarcely run into three figures, for the early part of this century saw its first use, whilst the early part of the next century will probably see its almost total extinction.

It has had a somewhat chequered career. Great things were expected of it, first as a means of communication between distant parts by means of signalling; then, later on, many attempts were made to utilise its great light-giving properties for street illuminations, but all the schemes and companies formed for this object were failures. In our own time it has been, and is being, banished from the stage, where it has proved a good servant for the last fifty years, so that to a great extent its present use is confined to the optical or magic lantern almost exclusively, and even here, in addition to having to fight against the invading electricity, the County Council and railway companies have set themselves against it.

To return to the early use of limelight. Whilst the brilliancy of lime when in a state of incandescence was well known as a laboratory experiment, it was not until Lieutenant (afterwards Captain) Thomas Drummond took up the subject that any use was made of this fact, and it may, therefore, be said that the first use of limelight took place in 1826, when Drummond put his light to a practical test at the survey Station of the Irish Survey.

However, before describing the light, it may be well to refer to what was, I think, the first spirit-jet ever used. This is described by the inventor, Dr. A. Marcet, in the *Annals of Philosophy* (edited by Dr. Thomas Thomson), Vol. II., 1813, in a letter to the editor, dated 8th July, 1813, from which volume the following illustration is taken :—

The process consists simply in urging the flame of a lamp of spirits of wine by a current of oxygen gas. The apparatus most convenient for the purpose is a metal vessel or gas holder, such as shown, from which a small jet of oxygen gas is forced out with some degree of violence by the introduction of water through a funnel one or two feet in length. Amongst various metals and bodies the inventor submitted to this flame, he mentions diamond, platina wire, iron wire and needles of quartz, and he speaks of the brilliancy of the light emitted in this way.

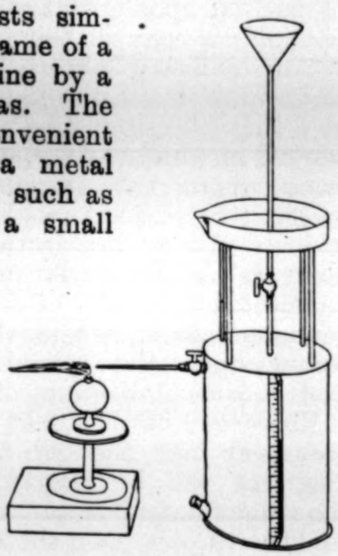


Fig 1.

Returning now to the Drummond light, as the limelight was then called, we find that a full description of it was communicated to the Royal Society on the 14th April, 1826, and the following drawings and explanation will give a very good idea of the first practical embodiment and use of this light.

The brilliant light emanating from several of the earths when exposed to a high temperature, being known to Drummond, he turned his attention to utilising it in a practical way. To obtain the requisite temperature, he had recourse to the known effect of a stream of oxygen directed through a flame of alcohol; in fact, he used Dr. Marcet's spirit jet.

Fig. II. represents the apparatus. The spirit entering at (A), ascended through the tubes (T), while the oxygen entering at (D) was directed by the jets (T^1) upon the small ball of lime (B), the tube (T^1) being connected with the cylinder (H) by rubber tubes (E F), and also passed with friction through small cylinders at (C), which admitted of being moved backwards and forwards upon the arms, and were clamped when in proper position by mill-headed screws at the sides. By these means adjustment of the jets was obtained. The apparatus was attached to a stand which carried the reflector (Fig. III.), the small ball of lime being brought accurately into focus of the reflector by means of the horizontal and vertical screws (R).

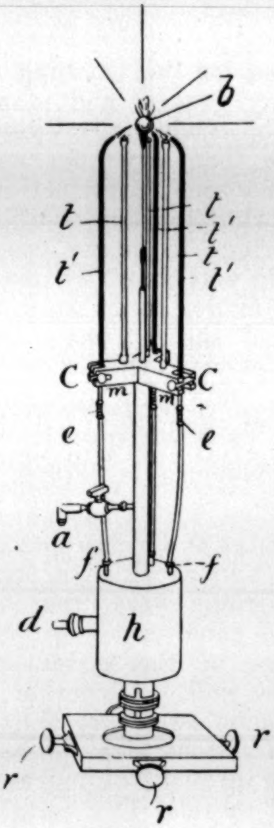


Fig. 2

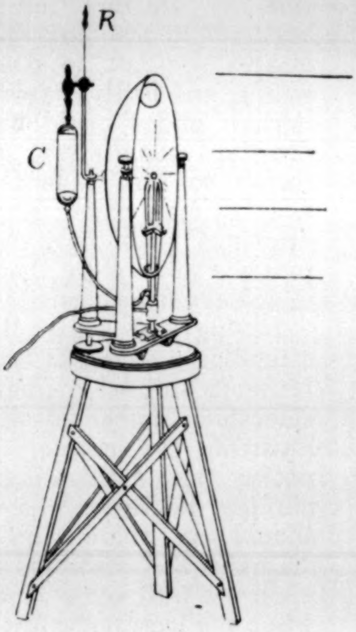


Fig 3

The cistern (C) containing the alcohol was placed behind the reflector, and being connected with the stem (A) by a rubber tube, it could be, elevated or depressed on the upright rod (R) and the flame of the spirit accordingly regulated so as to produce the greatest effect. A flexible tube led from (D) to the vessel containing the oxygen, which might be either an ordinary gas-holder, or a silk bag with a layer of rubber, such as were then made, might be used for the purpose. The apparatus first made was provided with five jets, and could light up a ball $\frac{3}{8}$ in. in diameter, but subsequently only three jets were used with a lime-ball $\frac{1}{4}$ in. in diameter.

With a view of obtaining the highest candle-power obtainable, Drummond experimented on a variety of incandescing bodies, with the following interesting result :—

Lime	37	times
Zirconia	31	,,
Magnesia	16	,,

the intensity of an argand burner.

(*To be continued.*)

Machine Construction Taught by the Lantern.

By Progress.

The lantern has been used for the teaching of such subjects as astronomy, geology, and many others, but there is one subject which to my mind needs its assistance more than any other, and that is drawing for machine construction. Students in machine drawing and construction classes are left to drawings in many cases wrong, and badly drawn in text books, whereas, lantern slides could be made from working drawings themselves, and shown upon the screen to the students present, the students thus gaining much more knowledge by seeing drawings that have been actually used in practice than mere theoretical and sometimes imaginary drawings.

During last winter I had the pleasure of attending a course of lectures at Jermyn Street Museum on heat engines, and at which a considerable number of diagrams were used to illustrate the lecture. I could not help but notice the disadvantages of the system of pinning diagrams upon the wall. Altogether, I should say, there were some twenty or thirty diagrams and drawings of various sizes pinned upon the wall, some skyed up to the ceiling, and when the lecturer wanted to refer to a certain diagram he had to pick it from them, and when found he then had to get a long rod, some 20 feet long, and point by means of this rod to the diagram or drawing that he desired the audience to direct their attention to. The audience gazed about trying to follow and find which diagram the swaying rod would drop upon, at the same time thinking of the consequences should the lecturer happen to miss his aim with the rod and let it fall. Considering that these lectures are given to working men, mostly old and not possessing the best of sight, it is a wonder that the lantern is not made available, seeing the advantage it has over the older method above mentioned.

Drawings of parts of machinery, such as would be required for copying lantern slides, could be executed at home as home-work. Beyond that the drawings should be simply shaded and not coloured. It is customary in classes to offer prizes for the best set of drawings done during the term, and amongst these could be found some splendid copies that could be utilised for the purpose of preparing lantern slides. After the lantern slides had been made from the simple shaded drawings, they could then be coloured according to the recognised colour of the various metals, etc. This is not the only way in which slides could be prepared for diagram work. In some cases drawings made upon a gelatine film itself would be sufficient, or by making a neat small tracing of the piece of machine upon a square of tracing paper, and obtaining a copy of the tracing on a printing out or ordinary lantern plate. The lantern slides thus obtained would appear as white lines on a dark background, being similar to a diagram worked in white chalk upon a background. In cases where the drawing thrown upon the screen is beyond the reach of the lecturer, and when if during the lecture it is desirable to point to certain parts repeatedly, this could be effected by means of a thin light rod, or a common knitting needle, the pointer being projected upon the screen together with the lantern slide of diagram.

There can be no doubt that the advantages possessed over the old method of exhibiting diagrams will be clearly seen. Besides the showing of diagrams, photographs of machinery could be thrown upon the screen and described. At South Kensington Museum there are many models of sections of apparatus which, if photographed and shown to the student upon the screen and described, would add much interest to the subject, and a larger number of students could at one time be instructed, than as by the ordinary method of a few students following a professor about a museum and trying to get a glimpse of the apparatus that is being described.

—:o:—

Lenses for Lantern Slide Negatives.

By Rev. T. Perkins.

A short time since a box of some seventy slides, all of architectural subjects, many of them interiors, circulated among the members of the newly formed Ecclesiological Lantern Slide Club, came to me accompanied by the note book in which members comment on each other's work. In this book I read a piece of criticism, which was certainly justified, to the effect that the prevailing fault in this set of slides was want of sharpness, without which photographs intended to aid the study of church architecture by accurate representation of detail lose the greater part of their value. This set me thinking how it came to pass that not one or two, but many of those who contributed slides had failed to secure sufficient sharpness. I believe in many cases it must have been due to the want of a lens that would give sharp definition over the whole area of the plate when worked with a large stop, which the dimly lighted nature of the subject required, unless a very long exposure could be given. I intend in this article to give a few hints on the choice of a lens for the production of negatives, especially of interiors what are primarily intended for the manufacture of lantern slides.

A short-focused lens used on small plates possesses many advantages for work of this kind. Some workers, indeed, prefer making slides by "reduction," rather than by "contact printing," because in the first place there is less risk of injuring the negative, and secondly, because there is less chance of getting parts of the transparency fuzzy, from the fact that owing to want of flatness in one or the other or both of the plates, the negative and lantern-plate may not be in absolute contact all over; but these two advantages may be secured by making the slide by means of a copying-camera without reducing the size. A plate $3\frac{1}{4}$ inches square is all that is required, but probably most will prefer to use the $\frac{1}{4}$-plate size, as cameras and plates of this size are more easily procured than those for $3\frac{1}{4}$ by $3\frac{1}{4}$ inch pictures.

Those who intend to make slides by contact would do well to stick on their focusing screen a lantern mask with an aperture 3 inches square, in order that when arranging their subject, they may see the maximum amount that can be included in a slide printed from the $\frac{1}{4}$-plate negative.

The great advantages of using small plates for interiors are that short focused lenses can be used without including a wide angle, and that a short focused lens possesses much greater "depth of focus" than one of longer focus. This is a fact that photographers do not always realise, and it may surprise many to be told that a 5 in. lens, working at $\frac{f}{8}$, will have as much depth of focus as a 10 in. lens working at $\frac{f}{32}$. Now if the former is used on a $\frac{1}{4}$-plate, and the latter on a whole plate, exactly the same amount of subject will be included, and with the stops mentioned above equal depth of focus will be secured, but at the expense of an exposure of sixteen times as long if the longer focused lens is used—no small consideration when the subject is so dimly lit that even with a stop of $\frac{f}{8}$ five minutes' exposure is needed.

To put the same fact in another way, it may be seen by reference to tables prepared for workers with hand cameras and fixed focus lenses, that a 5 in. lens with a stop of $\frac{f}{8}$ is capable of giving a practically sharp image at the same time of all objects situated at more than 27 feet from the lens, while with a 10 in. lens no object nearer than about 100 feet would be in focus at the same time as objects in the remote distance.

Hence it will be seen how great an advantage there is in using a small plate wherever the view is so dimly lighted that exposures of inordinate length would have to be given unless large stops can be used. Formerly, however, it was almost impossible to use a stop with as large an aperture as $\frac{f}{8}$ when a medium angle was to be included, as, owing to curvature of field, spherical aberration, and astigmatism present in varying degrees and proportions in lenses of the ordinary rapid rectilinear type, the margins would not possess that absolute sharpness which is essential in most negatives taken with a view to the production of lantern slides, for, as a rule, the slide maker does not aim at "naturalistic" photography, with that deliberate suppression of detail, which is so charming in many photographic prints of artistic subjects.

Recent improvements, however, in the manufacture of lenses have overcome this difficulty, and there are several types of lens about 5 in. focus, which can be used on a $\frac{1}{4}$-plate with an aperture of $\frac{f}{8}$, and yet give absolute sharpness up to the corners. Such are the Zeiss "Anastigmats," the Goerz "Double Anastigmats," the Voightländer "Collinears," the Cooke Triplets, and the youngest of the Anastigmatic family, the Wray "Platystigmats," which are now ready to be put on the market.

As I have had the opportunity of thoroughly testing the capabilities of these Platystigmats, and have used them with excellent results, I will devote the remainder of this article to a description of their powers. The lantern slide maker who is satisfied to get his transparencies from $\frac{1}{4}$-plate negatives will find that with this lens he rarely requires to use a smaller stop than $\frac{f}{8}$, as with this he will have a perfectly flat field, sharp all over, with no appreciable astigmatism, and all objects beyond about 25 feet will be for all practical purposes in focus at the same time. So it will be seen that it is all that can be desired for architectural interiors, and, of course, will be equally useful for general work as well. But the virtues of the lens are not yet exhausted, for, owing to the closeness of the two components to each other, a wide angle can be included whenever it is desired, and by gradually decreasing the aperture from $\frac{f}{8}$ to $\frac{f}{32}$ larger and larger plates up to whole plate size are covered sharply. I pushed the powers of the lens to the utmost in a very difficult interior to see what it would do, and using a stop of $\frac{f}{45}$, I got an absolutely sharp negative all over a whole plate, though objects varying in distance from about 5 to 60 feet were included. From such a negative of course an excellent slide might be made by reduction.

The only size in which these lenses are at present made (at the very moderate price of £4 5s., less the usual discount for cash), is one of 5 in. focus. Shorter and longer focused lenses of the same construction will doubtless follow in due course.

Is the Lantern Played out?—No.

By Albert Tranter.

"Imagination rules the World."

> "Lo, in the vale the mists of evening spread !
> The visionary arches are not there,
> Nor the green islands, nor the shining seas ;
> Yet sacred to me is this mountain's head,
> From which I have been lifted on the breeze
> Of harmony, above all earthly care."

The state of things implied by the question forming the title to this article will come to pass when people cease to take an interest in poetry and art, and which time I have reason to think is still a long way off, though to do duty to a lantern exhibition, it must be given under certain conditions, such, for instance, as those mentioned in an article by me in this Journal for July, 1894; and a select private exhibition, when the persons present can take their ease in comfortably upholstered chairs or settees, I consider much preferable to an exhibition when only about one half of the lecture can be heard by the audience, and no friendly remarks can be made respecting the pictures on the screen.

Assuming such favourable conditions as those I have described to have been provided, the optical lantern as an aid in illustrating imaginative poetry may, I think, be considered to stand unrivalled.

Take, for instance, Coleridge's "Hymn before sunrise in the Vale of Chamouni"; what could be more interesting than to have this grand poem read in conjunction with a properly coloured photographic slide of Mont Blanc, taken from the position mentioned in the title of the poem?

In connection with the same picture may be read Shelley's poem, entitled "Mont Blanc: Lines written in the Vale of Chamouni"; the idea of the author of each poem being to give a religious voice to one of Nature's grandest features—a work of imagination maybe, but how much he who makes no use of the power of imagination loses in life!

The two following quotations, taken from the last-named poem, will give the reader an idea of what I had in mind in writing this article:—

> "Thou hast a voice, great Mountain, to repeal
> Large codes of fraud and woe ; not understood
> By all, but which the wise, and great, and good
> Interpret, or make felt, or deeply feel."

* * * * *

> "The secret strength of things which governs thought, and to the infinite dome of heaven is as a law, inhabits thee."

If the reader should be desirous of obtaining a book in which the writer treats natural scenery in the same manner as a Roman Catholic regards the images in his church, viz.: as aids to devotion, let him obtain the Rev. G. B. Cheever's work, entitled "Wanderings of a Pilgrim in the Shadow of Mont Blanc, and of the Jungfrau Alp,"—one of the most beautiful books I have ever come across, and though written a good many years ago it will never be out of date as it deals with things which never grow old, though a person desirous of undertaking to-day a pilgrimage through the same regions of Switzerland as those discussed in the work referred to, would have to keep clear as much as possible of the modern sentiment-destroying mountain railway if he desired to experience the same sensations as those felt by the author of the book of which I have been speaking, and to give the reader an idea of the contents I will give the following quotations from it:—

"Those glittering distant peaks are the only thing in the scene that takes a powerful hold upon the soul; but they do quite possess it, and tyrannise over it, with an ecstatic thraldom. One is never wearied with gazing and wondering at the glory. I will lift up mine eyes unto the hills, from whence cometh my help."

"A man can hardly pass through the Vale of Chamouni, before the awful face of Mont Blanc, and not feel that he is an immortal being. The great mountain looks with an eye and speaks with a voice that does something to wake the soul out of its slumbers."

"In gathering the treasures and receiving the suggestions of Nature, we need, more than all things else, a prayerful, kind, and open heart. Mountains, to such a one, are as the stepping places of angels; the forms and influences that inhabit them seem supernatural."

* * * *

If the reader should wish to obtain other works written in the same vein, he may be referred to the works of Gessner, Klopstock, and Zimmerman, as containing impressions produced on a sensitive mind by the same kind of scenery as that which inspired the writer of the volume from which I have given a few extracts.

—:o:—

Cleanliness and Care in Lantern Matters.

By The Showman.

The owner of a lantern should always bear in mind that, inexpensive though his instrument may be, it is none the better for rough handling; on the contrary, it is one of those appliances which demand fair treatment above all things.

A cyclist knows the disadvantage of a dirty chain, and the agony of driving a machine with a wheel-guard choked with mud until it scrapes the tyre, but appliances of a more domestic nature are generally quite neglected until they refuse to act any longer. Sash-pulleys become set fast and the cord is allowed to scrape over them until it breaks, locks and latches are frequently worn out before their time through want of oil, clocks and watches are usually considered to be all right until they demonstrate in a more or less unpleasant manner that they are all wrong, and the lantern, that most popular of optical instruments, is too often subject to thoughtless neglect if not ill-usage. Now, the proper care of a lantern involves nothing very laborious or very unpleasant, and such slight pains as may be taken find their reward in the prolonged life of the instrument, for there is very little doubt that in the hands of a careful user a really well-made modern lantern will last practically a lifetime, with a moderate amount of usage. Unless a lantern is always used in the building in which it is kept, it should be provided with a travelling case strongly made of wood, and arranged to fasten so that there is no risk of its opening in transit. The lantern should have as little play as possible in its case, and any fittings which are carried in the same case should be provided with drawers, or pockets in which they can be stowed away, and so prevented from injuring any part of the lantern.

It is best to reserve the lantern case exclusively for the lantern and its particular adjuncts, but as a lantern in its case presents many tempting corners in which small articles are sometimes placed to save room elsewhere, it is well to see that such things are stowed so that they cannot do any damage—are packed, in short, instead of being placed in position.

To save time in setting it up, the lantern should go into its case with the condenser, jet, and dissolver (if any) in position, and the condenser should therefore be fitted with a bayonet catch to keep it from falling out of place, and fouling the jet. The jet must also be carefully screwed up on its rod, and the tray must be sufficiently tight in its grooves to keep it from sliding towards the condenser. If the rose top is packed inside the lantern, lower the jet to the bottom of the rod, and turn the nipple end to one side, then push the tray forward until the end of the jet is in the corner at one side of the condenser. Now, there should be plenty of room inside the lantern to stow away the rose top, but on no account omit to place a thick wad of cloth or paper between it and the condenser. One of the most common accidents to happen to a lantern during use is the breakage of the element of the condenser, next the jet. One cause of this is that the lens is cell-bound, that is to say, the edge of the ring which holds the lens has been burnished over in fixing the lens until the latter has become rigidly wedged in place. Burnishing should always cease while the lens has still the least play in its mount. To ascertain whether or not this is so, shake the condenser while held in one hand, when the lens in question may be heard to rattle, or if not, unscrew the front lens and hold the ring in the left hand. Then try to revolve the lens in its ring with the thumb and two fingers of the right hand. If this can be easily accomplished no anxiety need be felt as to the lens being cell-bound, but if not the thin point of a knife blade passed round the circumference under the thin edge, which is pressing upon the glass will generally effect what is required. No amount of freedom in the mount, however, will remove the effect of using bad or improper limes, or the result of inattention to the jet.

Exactly where the stream of gas strikes the lime a pit quickly becomes worn, from which the flame rebounds as the pit deepens, especially if the hydrogen is slightly in excess. If a point of flame touches the condenser an immediate fracture is the result.

Many years ago a clockwork train, driven by a powerful spring and known as a lime clock, was used. This was connected to the lime pin, and continuously revolved the lime at a very slow rate. This arrangement though necessarily somewhat expensive, obviated the necessity of continually turning the lime by hand, but if from any cause it stopped working and failed to be noticed, the remedy was as bad as the disease. A lime should be turned every minute or two according to its degree of hardness, but only far enough to present a new surface to the stream of gas, so that when finished the lime is covered with rows of pits close together. Make a rule of always turning a lime the same way and stick to it, as the greatest danger lies in turning indiscriminately backwards and forwards, for if an old pit were to be brought again into position, the result would most likely be disastrous. Always then begin either with a lime down as far as it will go and raise slightly each time, or at its highest position and gradually lower it.

A crack or crevice in the lime will often have the same effect as a pit as regards deflecting the flame, and although a single straight crack in a lime may easily be dodged, when numerous the best course is to substitute a fresh lime at the earliest opportunity. There is no certainty that a given lime will not crack while in use, but much risk may be removed by warming the lime very gradually. First light the hydrogen and allow a small flame about an inch high to play upon the lime while giving it one or two turns, then gradually increase the hydrogen until it is nearly full on, then open the oxygen tap sufficiently to slightly reduce the flame and leave it so for a minute or two. Then add more oxygen, and after turning the lime as before, adjust the taps so as to give the best light. A good lime treated in this way at first will rarely crack while in use.

A couple of dusters should always form part of the lantern outfit, as both the lantern and the slides often need dusting, and one duster should be of some fine soft material, which does not leave the slightest deposit behind, and should be kept exclusive for wiping the objective and condenser. Light your jet with a taper instead of a match, as, if the audience are in their places, the sudden turning of heads which the striking of a match often causes is apt to make a nervous lanternist go wrong at the start, and heads of matches get dropped into the bottom of the lantern. Probably a little lime dust will get about the lantern, and although this will not give trouble if kept wiped off the face of the condenser, it is just as well to start with the lantern clean each season. Remove the condenser, jet, and tray and sponge the inside of the lantern carefully with hot water, clean the tray in the same way and run some hot water through the jet, taking care to dry every part carefully before finishing. The insides of the dome and rose top should also receive attention, and if the instrument is a bi-unial, take out the plug of the dissolver, clean it thoroughly and put it together again with the slightest smear of vaseline, screwing it up until it will just work easily. It is far better to see to all these little things at home comfortably before the season commences, than to have a hitch in the middle of an exhibition, and endure the discomfort of the audience sitting gaping at you while you get flustered in your endeavours to find out what is wrong.

In the case of an oil lantern always wipe the oil tank perfectly dry everywhere before lighting up, and as soon as the exhibition is over be careful to empty and drain it out. If you do not wish to put the oil back in your oil flask, it is no great waste to throw it down a drain; at any rate, do not leave it in the lamp on any account, as it is certain to get upset over the bottom of the lantern, and before now I have found it all over the condenser, stage and objective as well.

The screen must also be taken great care of, and not packed near the reading lamp or oil flask, or an oily pattern may be the result next time it is hung up. The screen and slides are best kept apart from the rest of the apparatus, and made into a separate package in order that cleanliness may be insured. A screen should always be used on the same side, the face being kept distinct from the back, and in folding up first fold the top against the bottom with the face inside, then the middle against the top, and so on until it is sufficeintly narrow, when it may be folded from side to side. Under this system any dust which may get to the screen is always on the back, and the screen unfolds from side to side first.

The floor or stage where the screen is hung is generally none too clean even in the best regulated halls, and it is not desirable to either unfold or lower the screen upon it. To avoid doing so take a few chairs and place them in a row where the screen is to hang, with their backs alternately one side and the other, and seats about a foot apart. They will then form a species of trough in which the screen may be laid clear of the floor previous to attaching the cords, and into which it may be guided as it is lowered. By this means contact between a spotless screen and a questionable floor may be quite avoided, and the former kept out of the laundry for a surprising length of time.

Topical Notes.

By The Dreamer.

By a curious coincidence, my criticism of the Lantern Society in last month's issue was immediately followed by a *resumé* of the past session's work of the Society, which only confirmed my remarks.

Two subjects which have received a considerable amount of attention of late, are colour photography—or rather optical projection of pictures in (more or less) natural colours—and stereoscopic projection. The latest aspirant for honours in the latter direction is Mr. T. E. Freshwater, whose system is being introduced by Messrs. Newton & Co., of Fleet-street, London. I have at the time of writing heard nothing about the process, but I should not be surprised if it turns out to be a modification of Du Hauron's system of coloured glasses.

The recent limelight jet competition does not seem to have been altogether a success. Of course where the competition is a candle-power race, large bores and an unlimited consumption of gas are absolutely necessary, but the result does not prove that a certain jet is the best for general use. I doubt very much if a jet with a one-eighth inch bore, giving a candle-power reading of 1,000, and a gas consumption of 20 feet each gas per hour, would meet with a ready sale.

I fancy a competition in which the gas consumption was limited to, say, five or six feet of oxygen per hour, would have a greater interest to users of jets, or if the gas consumption be limitless, the relative proportions of candle-power and gas should be taken into account in the decision.

The alarm—to a great extent uncalled for—which was created by the Fenchurch Street explosion, has caused enquiries to be made as to the various methods of obtaining oxygen without the employment of cylinders for the compressed gas. Whilst I do not consider there is any danger in using a properly tested cylinder, there is no doubt an opening for a compact, portable and easily worked oxygen generator, and I understand several makers are introducing or re-introducing such apparatus for the present season.

The subject of the arc electric light for use in lantern projection is also one which is receiving a considerable amount of attention, and much ingenuity has been expended in producing first-class lamps at a reasonable price. However, the popularity will be limited until the supply of electrical energy is more universal, as batteries, either primary or secondary, for practical use are out of the question.

I have an idea that a cheap and efficient dynamo and oil or gas engine of small size for the production of the electrical current would meet with considerable success, not only for lantern purposes, but also for a variety of uses in which a comparatively small amount of the electric fluid is required.

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New Apparatus.

WATSON'S INSTANTANEOUS FLANGE.

At their premises at 313, High Holborn, Messrs. Watson & Son are busy with a new flange that bids fair to become in general use. With it it is unnecessary to screw the lens into place, as this is done by sets of teeth, which, when the lens is set into its place, lie imbedded in the metal of the flange, as at (A); but the movements of the lever causes the sets of teeth to fall into the screw portion of the lens as shown at (B). The lens is thus as secure as though it had been screwed in for three or four rounds.

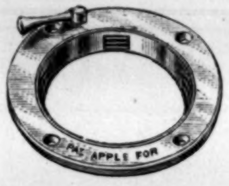


Fig. A.

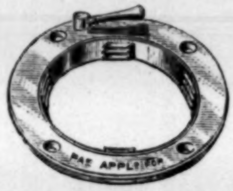
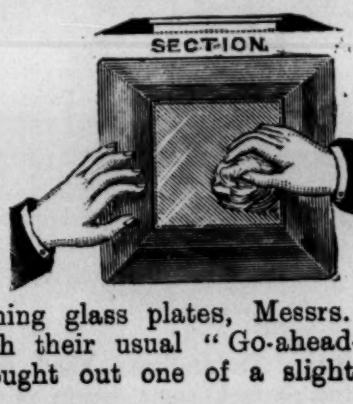


Fig. B.

GLASS CLEANING APPARATUS.

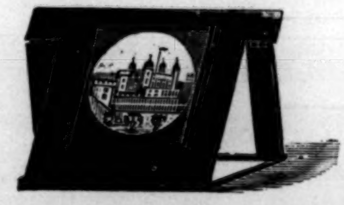
Following the suggestion that we threw out in this Journal for February last, respecting a tool for cleaning glass plates, Messrs. Butcher & Son, with their usual "Go-ahead-itive-ness," have brought out one of a slightly different



shape. These, as per cut herewith, they make for various sizes of plates. Those whose province is to make and bind lantern slides will at once see the utility of such a contrivance, as the glass can be well cleaned in a very short space of time.

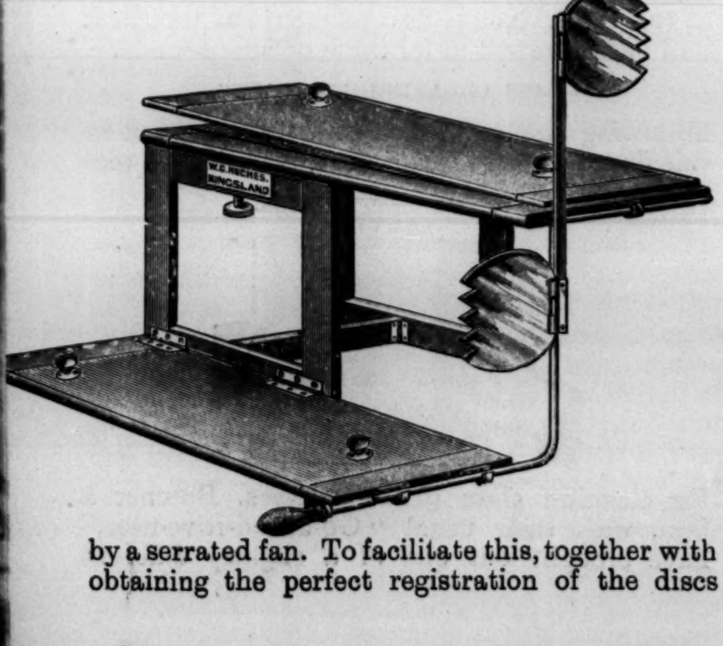
TRANSPARENCY EASELS.

The same firm have introduced a nice neat stand of metal, enamelled. It can be folded up to about half an inch in thickness, and when opened, presents the appearance as shown. The front portions are of dark green colour, and the reflector white, and the slide is inserted in an opening at the top. As a table ornament it is particularly attractive for either lantern slides or for transparencies up to whole plates. It is made in four sizes, viz., lantern size, quarter, half and whole plate.



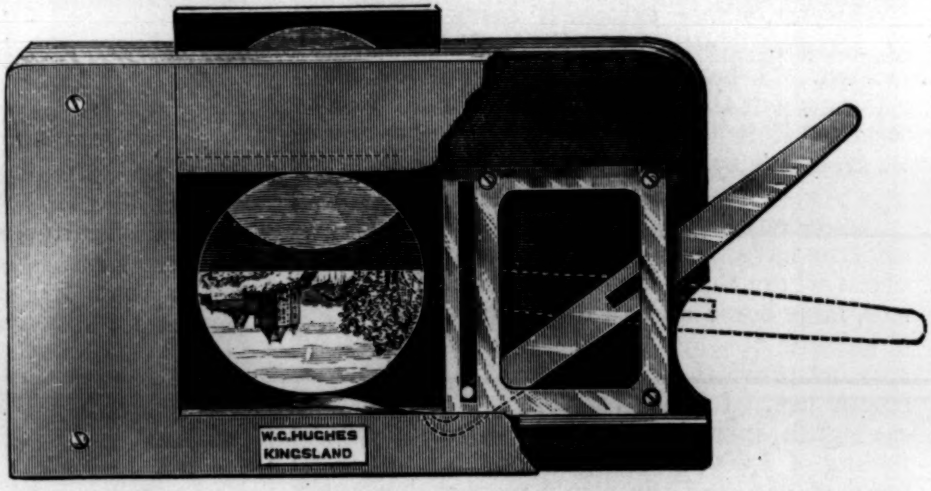
OIL LANTERN DISSOLVING STAND.

Although many people may imagine that dissolving with oil lanterns is something of the past, it is by no means the fact. The light must, of course, be kept burning, and the dissolving is done by a serrated fan. To facilitate this, together with obtaining the perfect registration of the discs when two oil lanterns are used, Mr. W. C. Hughes, of Kingsland, has brought out the following stand, which is very effective, and which is capable of being closed up in very small compass. The lanterns stand side by side, but one is elevated above the other, and the top portion of the stand is fitted with a tilting table, which renders the coinciding of the discs a simple matter.



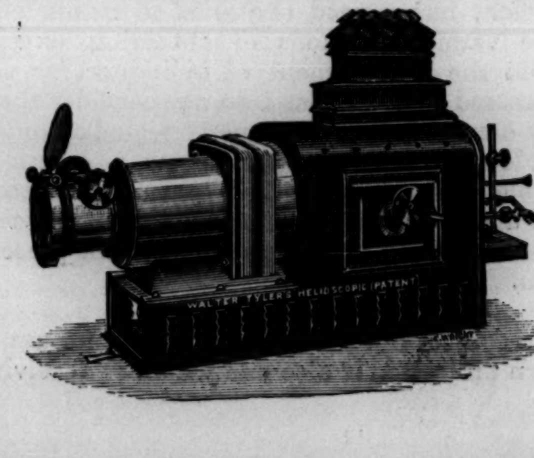
DISSOLVING CARRIER FOR SINGLE LANTERNS.

This is also the product of Mr. Hughes' brain, but the *dissolving* effect must, of course, be subject to the definitions of the word *dissolving*, which each reader or user has a right to determine for himself. However, the slides are dropped in from above, so that for a moment two slides are within the rays of light, the first only being in focus. By the downward movement of the lever shown, the first slide is suddenly raised out of sight, and immediately the second slide is forced into the place which the former occupied, thus bringing it immediately into focus.



HELIOSCOPIC LANTERN.

During the last few months Mr. Walter Tyler, of Waterloo Road, has been remodelling



this lantern. The body and front are made of stouter and firmer material. Instead of the 4 inch condenser, he has added one of $4\frac{1}{2}$ inch diameter, and the lens itself has also undergone a change; whereas a lens of $1\frac{5}{8}$ inch diameter was used, it has now given place to one of $2\frac{3}{8}$ inch diameter of the Petzval form, which is also suitable for portraiture. One of the most curious things is that with all these improvements the price still remains as of old. It is to be hoped that Mr. Tyler has not a large stock of the old form on hand, for it is evident that one seeing the new form will not purchase the old style unless at a considerable reduction in price.

STEREOSCOPIC PICTURES ON THE SCREEN.

A few days ago we had the opportunity of inspecting, with stereoscopic effect upon the screen, a number of slides that are being introduced by Messrs. Newton & Co., of Fleet Street. Unaware that others were and had been experimenting in the same direction, Mr. Freshwater has without that knowledge brought his system to perfection. The effect produced is grand, and stereoscopic pictures projected in this manner lend a special enchantment to a lantern exhibition, especially as without any alteration an ordinary bi-unial lantern can at once be used. The effect is given by the manner in which the slides are mounted, together with the use of a special pair of spectacles by the members of the audience. Mr. Freshwater intends giving a public demonstration on the 2nd inst. at the London and Provincial Photo Association.

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Patent Intelligence.

The following list, relating to current Patent Applications, is compiled expressly for "The Optical Magic Lantern Journal" by a registered Patent Agent. For further information apply to The Patent Department, "Optical Magic Lantern Journal," 56, Chancery Lane, London, W.C.

No. RECENT PATENT APPLICATIONS.

22186. 21st November, 1895. E. Underwood. Certain improvements in portable apparatus for making photographic lantern slides.

22282. 22nd November, 1895. W. Butcher, W. F. Butcher, and W. J. Spurrier. Improvements in optical lantern slides.

22369. 23rd November, 1895. H. C. Newton. An improved electric arc lamp for magic lanterns.

22515. 25th November, 1895. G. W. Gwyer, jun. Improved means for thoroughly mixing the gases for limelight production, and in apparatus therefor.

22682. 27th November, 1895. F. J. Ricarde-Seaver and L. Pernot. Improvements in and connected with photographic enlarging apparatus.

22732. 28th November, 1895. C. A. Burghardt and G. Rigg. Improvements in the production of oxygen gas

23079. 3rd December, 1895. H. C. Newton and T. E. Freshwater. A method of producing a stereoscopic effect on the screen.

23938. 15th December, 1895. J. Davenport and F. O. Scott. A mechanical contrivance for determining the angle at which optical lantern screens should be hung.

RECENTLY-PRINTED SPECIFICATIONS.

Copies of the following specifications may be obtained by remitting 1/- for each specification to The Patent Department, "Optical Magic Lantern Journal," 56, Chancery Lane, London, W.C.

17306 of 1895. Herp (Hanlaos) Stereoscopes.
1287 of 1895. Barton and Stuart. Optical lanterns, etc.

——:o:——

Editorial Table.

WALTER TYLER'S CATALOGUE.—Again Mr. Tyler, of Waterloo-road, has brought out a ponderous volume which is a catalogue of the various goods in which he deals. This year it contains nearly 500 pages. Much lantern apparatus of a new kind is introduced, including the new form of helioscopic lantern (particulars of which will be found on another page). The names of the slides would fill this journal for several numbers, so we will not touch upon them. At the commencement of the book a very useful form of index pertaining to the slides has been arranged, and at a glance one is enabled to see the full title, the number of slides in a set, the price of the reading, and the number of the page of the catalogue, on which full particulars will be found.

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Correspondence.

ACETYLENE.

To the Editor.

DEAR SIR,—I read in the September number of your interesting journal the mention of a new gas, acetylene. I was very much interested. I have sent to the address mentioned for a supply. You mention in your article that the gas in its pure state gives off smoke, but it can be obviated by introducing common air. How can you do this? There is no provision made in the apparatus shown. Kindly say how it can be done. Please mention if the gas is liable to explode.

Yours respectfully,

W. H. MATHIESON.

Invercargill, N.Z.

[The explosive point is reached when 1 volume of acetylene is mixed with $1\frac{1}{4}$ vols. of air. It is then only slightly explosive. As the proportion of air is increased, the explosive also increases. When 12 vols. of air and 1 of acetylene are combined, it reaches its greatest explosive point, and as the proportion of air increases beyond this, so the explosive nature diminishes, so that with 20 vols. of air to 1 of acetylene. it is no longer explosive.—ED.]

SELF-LIGHTING JETS.

To the Editor.

SIR,—Allow me to call attention to an error in the illustration of self-lighting limelight jets, page 177. If placed as shown, the self-lighting attachment would in either case throw a very objectionable shadow upon the condenser. Underneath the nipple, or low down at the side, would be a far better position for it. The object of inclining the lime as shown, page 183, is that the nipple even shall cast no shadow upon the condenser. This is an excellent practice on the part of jet makers, and it is a pity it should not be more frequently adopted.

Yours truly,
G. HASTINGS PHILP.
Weston-road, Gloucester.

SQUARE LIMES.

To the Editor.

DEAR SIR,—With respect to the two letters which have appeared on the above subject, I tried all shapes of limes, including a cube some time ago, and came to the conclusion that so long as we continue lime, that of the cylindrical shape is the best, but they could with better effect be made of larger diameter than those at present sold.

Yours truly,
EXPERIMENTED.

OIL LIGHTS.

To the Editor.

DEAR SIR,—Mr. Mathieson asks in last issue why we cannot have lantern lamps like the lamp he mentions, which is claimed to give 300 candle-power. I think I am not far wrong when I state that with domestic lamps the candle-power is calculated as it were all round. Thus, if a quarter of a circle represents 10 c.-p. the remaining ¾ of the circle will give three other lots of c.-p. each of 10 c.-p., so that this is termed 40 c.-p.; but use this lamp in a lantern with even a reflector and it will only give about 15 c.-p. Lamps are advertised for lanterns to give (under lantern conditions) 100 c.-p., but were such a lamp used domestically, with a glass chimney all round, it would be termed of about 400 c.-p.

Yours respectfully,
RICHARD MORGAN.

:o:

Notes and Queries.

J.B.—The screws are too slack, that is all.

Troubled One.—Depend upon it, the objective is at fault.

Light.—If you like to publish it in the advertisement columns with your name and address attached it can go in, but it certainly will not in that portion for which we are liable. This is the third or fourth time you have written upon this subject; for goodness sake try some other paper, perhaps they may insert it.

T. J. S.—It will appear in next.

S. Wills.—There are so many dealers and makers on the continent that it is impossible to give their names and addresses here, but you can obtain almost any of their slides through any importing London or provincial firm.

John McPhee.—Use a powerful electric search light, and stencils as slides, and you will then get the desired effect. If clouds happen to be handy so much the better; failing this, you can project on anything that impedes, providing the law does not intervene, as in the case of Nelson's column in London.

Joseph Schien.—See reply to Mr. McPhee.

Walter Walker.—If you are sure you are clear as to the inlet and outlet pipes, and are using them correctly and then get the effect mentioned, we should advise you to return the apparatus and let the makers see it. If it is incorrectly made they will doubtless exchange it. Try six ounces only.

Peter.—There is a lot of nonsense written about the use of soft limes. Try both, and you will soon be convinced that hard limes are suitable for either purpose.

Jas. Osborne, Ph.C., of 6, Norton Gardens, Westover-road, Wandsworth Common, S.W., writes:—In your answer in "Notes and Queries" of last month's LANTERN JOURNAL on the new oxygen producer and chlorine, you have made some remarks that are calculated to mislead. It is generally believed that there is a quantity of free chlorine given off with the oxygen produced from potassium chlorate. I have made a careful examination of the gas produced by this machine, and can safely say that if any chlorine is formed in the process it is immediately fixed by the metallic surface of the producer; no chlorine enters the bag, as I have proved by passing a large volume of the gas through a dilute solution of indigo.

Queries received after December 19th will have attention in next.

Gratifying Information

FROM AN

ADVERTISER.

Mr. HOULDERSHAW writes Dec. 11, 1895:

"I am sure you will be gratified to hear that the OPTICAL MAGIC LANTERN JOURNAL AND PHOTOGRAPHIC ENLARGER is a very effective medium for advertising, as within the four months I have advertised in it, I have in reply received applications from

FRANCE,
SPAIN,
GERMANY,
DENMARK,
AMERICA,
NEW ZEALAND,

besides numerous letters from Great Britain and Ireland. In fact, it has proved quite an item to provide stamps alone to answer communications."